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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/536,618	03/28/2000	Toyokazu Fujii	43889-929	5999

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WASHINGTON, DC 20005-3096

EXAMINER

PHAM, HOAI V

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 03/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/536,618

Applicant(s)

FUJII ET AL.

Examiner

Hoai V Pham

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4, 6, 7, 10, 12, 13, 37 and 38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 6, 7, 10, 12, 13, 37 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/018,181.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 4, 7, 12, 13, 37 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Lu et al. [U.S. Pat. 5,652,165] newly cited.

Lu et al. (figures 1-11, cols. 3-6) discloses a semiconductor device comprising:
a substrate (10) having a semiconductor region;
a first insulating film (30A) formed on the semiconductor region (col. 4, lines 50-57);

a second insulating film (50) formed on the first insulating film and containing at least silicon nitride (col. 6, lines 24-32); and

a supporting film (32A) formed between the first and second insulating films (col. 4, lines 57-60), wherein the entire lower surface of the supporting film contacts the upper surface of the first insulating film (fig. 1).

With respect to claim 4, Lu et al. discloses that the semiconductor device is a stacked DRAM cell comprising:

- an interlayer insulating film (30A) formed on the semiconductor region;
- a storage node (34) filling an opening formed in the interlayer insulating film and extending over apart of the interlayer insulating film (fig. 11);
- a capacitor insulating film (50) and a plate electrode (54) formed for coverage over the storage node (fig. 11), wherein
 - the first insulating film defining the interlayer insulating film,
 - the second insulating film defining the capacitor insulating film,
 - the supporting film is interposed between the interlayer insulating film and the capacitor insulating film.

With respect to claim 7, Lu et al. discloses that the second insulating film (50) comprises a silicon nitride film (col. 6, lines 24-32).

With respect to claim 12, Lu et al. discloses that the first insulating film (30A) comprises a BPSG film (col. 4, lines 50-57).

With respect to claim 13, Lu et al. discloses that the supporting film (32A) comprises a silicon oxide film (col. 4, lines 57-60).

With respect to claim 37, Lu et al. discloses that the supporting film (32A) does not reflow due to the heat treatment which causes the first insulating film (30A) to reflow.

With respect to claim 38, Lu et al. discloses that the second insulating film (50) is formed directly on the surface of the supporting film (32A) (fig. 11).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu et al. [U.S. Pat. 5,652,165] newly cited, as applied to claims 1, 4, 7, 12, 13, 37 and 38 above, and further in view of Lee [U.S. Pat. 5,936,272] previously applied.

With respect to claims 6 and 10, Lu et al. discloses all the limitation as claimed above except: an etching stopper film (silicon nitride) is overlying the supporting film and underlying the storage node. However, Lee discloses the etching stopper film (136, silicon nitride) is overlying the supporting film (135) and underlying the storage node (160) (fig. 4G, col. 8, lines 52-53). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to form the etching stopper film overlying the supporting film, as taught by Lee, into the device of Lu et al. so as to use it as an etch stop layer.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoai V Pham whose telephone number is 703-308-6173. The examiner can normally be reached on 6:30A.M. - 6:00P.M..
8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 703-308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.
9. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

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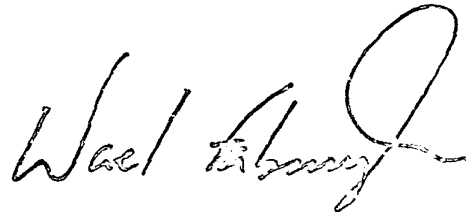
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HP

Hoai Pham

March 2, 2003

A handwritten signature in black ink, appearing to read "Wael Elbany". The signature is fluid and cursive, with a large loop at the end.

SUPERVISORY PRIMARY EXAMINER
TECHNOLOGY CENTER 2800